

What is claimed is:

1. A radiation image storage panel comprising a  
5 support sheet and a phosphor layer formed on a surface of  
the support sheet by vapor-accumulating method, wherein  
the phosphor layer comprises prismatic crystals of phosphor  
aligned in the same direction, and each of the crystals  
has a convex surface at one end.
- 10 2. The radiation image storage panel of claim 1,  
wherein the phosphor is stimuable phosphor.
3. The radiation image storage panel of claim 2,  
15 wherein the crystal has a convex surface at the end not  
facing the surface of the support.
4. The radiation image storage panel of claim 2,  
wherein the support is a transparent support, and the  
20 crystal has a convex surface at the end facing the surface  
of the support.
5. The radiation image storage panel of claim 1,  
wherein the convex surface is a spherical surface.
- 25 6. The radiation image storage panel of claim 1,  
wherein the prismatic crystals of phosphor are aligned  
perpendicularly to the surface of the support.
- 30 7. A process for preparing a radiation image storage  
panel of claim 3, comprising applying electron beams  
to a stimuable phosphor source to vaporize the phosphor  
source and depositing the vapor of the phosphor source on  
the surface of the support, in which the electron beams  
35 are gradually reduced in their energy just before the  
deposition is complete.

8. A process for reading radiation image information comprising the steps of:

moving in one direction the radiation image storage panel of claim 3 on which radiation image information is recorded and stored, in relation to a line sensor which comprises plural photoelectric converting elements arranged linearly and which is placed over the convex surfaces of the aligned prismatic phosphors of the storage panel on a line extending from the end of the convex surface of the aligned prismatic crystal in the same direction, under such condition that the line sensor moves on a plane parallel to the storage panel, while the phosphor layer of the storage panel is scanned with stimulating rays in a direction which is different from the direction of the movement of the storage panel and the stimulating rays are applied onto the phosphor layer approximately parallel to the aligning direction of the prismatic phosphor crystals in the phosphor layer;

detecting an emission emitting from the phosphor layer of the storage panel by the line sensor, so as to photoelectrically convert the emission to an electric signal;

detecting an electric signal of the movement of the storage panel in relation to the line sensor;

and

comparing the signal of the emission and the signal of the movement of the storage panel to produce a radiation image information in the form of electric signals.

9. The process of claim 8, wherein the prismatic crystals of phosphor in the phosphor layer of the radiation image storage panel are aligned perpendicularly to the surface of the support.

10. A process for reading radiation image information, comprising the steps of:

- moving in one direction the radiation image storage panel of claim 4 on which radiation image information is recorded and stored, in relation to a line sensor which comprises plural photoelectric converting elements arranged linearly and which is placed below the support of the storage panel on a line extending from the end of the convex surface of the aligned prismatic crystal in the same direction, under such condition that the line sensor moves on a plane parallel to the storage panel, while the phosphor layer of the storage panel is scanned with stimulating rays in a direction which is different from the direction of the movement of the storage panel and the stimulating rays are applied onto the phosphor layer approximately parallel to the aligning direction of the prismatic phosphor crystals in the phosphor layer;
- detecting an emission emitting from the phosphor layer of the storage panel by the line sensor, so as to photoelectrically convert the emission to an electric signal;
- detecting an electric signal of the movement of the storage panel in relation to the line sensor;
- and
- comparing the signal of the emission and the signal of the movement of the storage panel to produce a radiation image information in the form of electric signals.

11. The process of claim 10, wherein the prismatic crystals of phosphor in the phosphor layer of the radiation image storage panel are aligned perpendicularly to the surface of the support.